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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/051,396 | 01/18/2002 | Santosh C. Lolayekar | E003-1005US0 | 8983 |
| 48789 | 7590 | 11/04/2005 | EXAMINER | |
| GREY, CHRISTOPHER P | | | | |
| ART UNIT | | PAPER NUMBER | | |
| | | 2667 | | |

DATE MAILED: 11/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|------------------------|---------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/051,396 | LOLAYEKAR ET AL. |
| | Examiner | Art Unit |
| | Christopher P. Grey | 2667 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 18 January 2002.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-35 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ . |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____ . |

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims are rejected under 35 U.S.C. 103(a) as being unpatentable over Ryals et al. (US 20020116535), hereinafter referred to as Ryals, in view of Nahum (US 20030236945)

Claim 1, 8, 9, 10, 12, 14, 15, 17, 18, 24, 25-35 Ryals discloses receiving at a first port, a packet that specifies a destination address (Paragraph 0036, 0042 and see elements 436, 438 and 448 in fig 4).

Ryals discloses sending at a second port the packet to a destination (paragraph 0009 and 0061 and 0054).

Ryals discloses a memory within each linecard for string identification information (see fig 4 element 414)

Ryals discloses a buffer within the interface card (see fig 4), as does the present application, which contains a buffer in combination with the TM within a linecard.

Ryals does not specifically disclose a virtual target, and a physically target associated with the virtual target.

Ryals also discloses a linecard connected to a plurality of line cards (see fig 1 and elements 102, 110 and 114).

Nahum discloses a storage virtualization manager, which is coupled to a network switch. Nahum also discloses the SVM managing and translating a virtual destination address to a physical address (paragraph 0059, 0068 and 0093).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to couple a storage virtualization manager to the interface card of the switch as disclosed by Ryals. The motivation for this modification is to translate from a virtual to a physical location (paragraph 0036 and 0037).

Claim 2, 11, 13, 16 Ryals discloses step a and b occurring at wire speed (paragraph 0028), where it would have been obvious to one of the ordinary skill in the art at the time of the invention that steps a and b occur within the switch, where all operations within the switch occur at a designated switches wire speed.

Claim 3 Ryals discloses the first line card forwarding the packet to the second linecard along with information pertaining to the destination (paragraph 0061 and 0009 and 0054 and elements 402 and 448 in fig 4).

Ryals does not specifically disclose the second linecard utilizing the information about the virtual target to update the packet with an address of a physical target.

Nahum discloses a storage virtualization manager, which is coupled to a network switch. Nahum also discloses the SVM managing and translating a virtual destination address to a physical address (paragraph 0059, 0068 and 0093).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to couple a storage virtualization manager to the interface card of the switch

as disclosed by Ryals. The motivation for this modification is to translate from a virtual to a physical location (paragraph 0036 and 0037).

Claim 4, 5 Ryals discloses using routing tags to route data packets between interface cards, where routing tags are stored within a local memory (paragraph 0060 and 0061 and 0040 and 0049).

Claim 6 Ryals does not specifically disclose the second linecard utilizing information about the virtual target to obtain information about a physical target with the virtual target.

Nahum discloses a storage virtualization manager, which is coupled to a network switch. Nahum also discloses the SVM managing and translating a virtual destination address to a physical address (paragraph 0059, 0068 and 0093).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to couple a storage virtualization manager to the interface card of the switch as disclosed by Ryals. The motivation for this modification is to translate from a virtual to a physical location (paragraph 0036 and 0037).

Claim 7 Ryals discloses the packet being for a particular request, and wherein at least one trace tag is associated with the packet and identifies information associated with the request (paragraph 0005 and 0061). It would have been obvious to one of the ordinary skill in the art at the time of the invention that the incoming packet may be a request.

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2. Claims are rejected under 35 U.S.C. 103(a) as being unpatentable over Ryals et al. (US 20020116535), hereinafter referred to as Ryals, in view of Nahum (US 20030236945) in further view of Fukumoto et al. (US 6775706), hereinafter referred to as Fukumoto.

Claim 19, 21, 22, 23 Ryals discloses receiving at a first port, a packet that specifies a destination address (Paragraph 0036, 0042 and see elements 436, 438 and 448 in fig 4). Ryals discloses the packet being for a particular request, and wherein at least one trace tag is associated with the packet and identifies information associated with the request (paragraph 0005 and 0061). It would have been obvious to one of the ordinary skill in the art at the time of the invention that the incoming packet may be a request.

Ryals discloses using routing tags to route data packets between interface cards, where routing tags are stored within a local memory (paragraph 0060 and 0061 and 0040 and 0049).

Ryals discloses forwarding the packet to the egress linecard through a fabric and receiving the packet at the egress linecard (paragraph 0009 and 0054);

Ryals discloses removing the local header and forwarding the packet to an egress port on the egress linecard (paragraph 0050 and 0054).

Ryals discloses routing tags, where it would have been obvious to one of the ordinary skill in the art at the time of the invention that a new source address may be used when the packet exits the egress linecard.

Ryals discloses a memory within each linecard for string identification information (see fig 4 element 414)

Ryals discloses a buffer within the interface card (see fig 4) as does the present application, which contains a buffer in combination with the TM within a linecard.

Ryals does not specifically disclose using the virtual target descriptor identifier, retrieving a physical target descriptor identifier, wherein the physical target descriptor identifier identifies a physical target descriptor, wherein the physical target descriptor stores information about a physical target that is associated with the virtual target; allocating an egress task control block with an egress task control block index, wherein the egress task control block index stores information about the request; using information in the physical target descriptor to convert the virtual target address to a physical target address;

Nahum discloses a storage virtualization manager, which is coupled to a network switch. Nahum also discloses the SVM managing and translating a virtual destination address to a physical address (paragraph 0059, 0068 and 0093).

The combined teachings of Ryals and Nahum do not specifically disclose adding a local header to the packet, retrieving a flow ID from the virtual target descriptor and placing the flow ID into the local header, wherein the flow ID identifies an egress linecard, allocating an ingress task control block identified by an ingress task control block index, wherein the ingress task control block index stores information about the request; placing the ingress task control block index and the virtual target descriptor identifier into the local header.

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Fukumoto discloses adding a local header to the packet within a switch (Col 3 lines 57-65 and element 208);

Fukumoto discloses retrieving a flow ID from the virtual target descriptor and placing the flow ID into the local header, wherein the flow ID identifies an egress linecard (Col 3 lines 36-65)

Fukumoto discloses allocating an ingress task control block identified by an ingress task control block index, wherein the ingress task control block index stores information about the request; placing the ingress task control block index and the virtual target descriptor identifier into the local header (Col 3 lines 36-65);

It would have been obvious to one of the ordinary skill in the art at the time of the invention to couple a storage virtualization manager to the interface card of the switch as disclosed by Ryals. The motivation for this modification is to translate from a virtual to a physical location (paragraph 0036 and 0037). Furthermore, it would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the combined teachings of Ryals and Nahum, with the packet generating section, header adding section and port number deleting section as disclosed by Fukumoto. The motivation for this combination is to support multiple protocols.

Claim 20 Ryals discloses step a and b occurring at wire speed (paragraph 0028), where it would have been obvious to one of the ordinary skill in the art at the time of the invention that steps a and b occur within the switch, where all operations within the switch occur at a designated switches wire speed.

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
 - (a) Barach (US 6470013) discloses a technique for configuring address information for intelligent port cards
 - (b) Sasahara (US 6412057) discloses a method for virtual to physical address translation.
 - (c) Mitchem discloses route determination and lookup in a fiber channel switch implementing a switch fabric.

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4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher P. Grey whose telephone number is (571)272-3160. The examiner can normally be reached on 6:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on (571)272-3179. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Christopher Grey
Examiner
Art Unit 2667

Chi Pham
10/25/05

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10/26/05